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FLYNN, THIEL, BOUTELL & TANIS, P.C.
2026 Rambling Road
Kalamazoo, MI 49008-1699

EXAMINER

SPAHN, GAY

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/863,749
Filing Date: May 23, 2001
Appellant(s): FUKUMOTO ET AL.

Terryence F. Chapman
For Appellants

EXAMINER'S ANSWER

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This is in response to the supplemental appeal brief filed with a certificate of mailing dated January 6, 2005 appealing from the Office action mailed May 18, 2004.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the supplemental appeal brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the supplemental appeal brief is incorrect. A correct statement of the status of the claims is as follows:

This appeal involves claims 13, 15, 16, 18, 21, 23, and 24.

Claims 13 and 16 have been amended subsequent to the final rejection.

Claims 6, 7, 12, 22, 25, and 26 have been allowed.

Claims 14 and 17 have been objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 1-5, 8-11, 19, and 20 have been canceled.

(4) Status of Amendments After Final

The amendment after final rejection filed with a certificate of mailing dated January 6, 2005 has been entered.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the supplemental appeal brief is deficient. 37 CFR 41.37(c)(1)(v) requires the summary of claimed subject matter to include: (1) a concise explanation of the subject matter defined in each of the independent claims involved in the appeal, referring to the specification by page and line number, and to the drawing, if any, by reference characters and (2) for each independent claim involved in the appeal and for each dependent claim argued separately, every means plus function and step plus function as permitted by 35 U.S.C. 112, sixth paragraph, must be identified and the structure, material, or acts described in the specification as corresponding to each claimed function must be set forth with reference to the specification by page and line number, and to the drawing, if any, by reference characters. The supplemental appeal brief is deficient because it does not give reference numerals for the structure shown in the drawings.

Claim 13 is directed to a submerged breakwater generating structure (1) comprising an open box having a vertical wall (10) for producing a breakwater at an offshore side, said vertical wall (10) having at least one opening (11) at lower end and slits (14) inclined with respect to the direction along which waves propagate disposed

at the top portion of said box, said slits (14) defining openings provided spaced-apart relationship between said vertical wall (10) and a second vertical wall of said open box. (Support for the recitations of claim 13 can be found in the clean copy of the substitute specification filed on September 9, 2002 at page 7, lines 17-29 and Figure 2).

Claim 15 is directed to the submerged breakwater generating structure (1) according Claim 13, wherein at least one hole (15) is formed at the bottom of said box. (Support for the recitations of claim 15 can be found in Figure 2).

Claim 16 is directed to a submerged breakwater generating structure (1) comprising an open box having a vertical wall (10) for producing a breakwater at an offshore side, said vertical wall (10) having at least one opening (11) at a lower end thereof and slits (14) inclined with respect to the direction along which waves propagate which are disposed at the top portion of said box, said slits (14) defining openings provided in a spaced-apart relationship between said vertical wall (10) and a second vertical wall of said open box, said box being formed as two stages and placed on a mound (3). (Support for the recitations of claim 16 can be found in the clean copy of the substitute specification filed on September 9, 2002 at page 8, line 30 through page 9, line 3 and Figure 4).

Claim 18 is directed to the submerged breakwater generating structure (1) according Claim 16, wherein a through path is provided from said box to a coastal side of said breakwater generating structure (1). (Support for the recitations of claim 18 can be found in the clean copy of the substitute specification filed on September 9, 2002 at page 13, lines 10-16).

Claim 21 is directed to the submerged breakwater generating structure (1) according to Claim 13, wherein a height of a coastal side wall of said box is higher than a height of said vertical wall (10) and positions of said slits (14) are arranged to become higher toward said coast. (Support for the recitations of claim 21 can be found in the clean copy of the substitute specification filed on September 9, 2002 at page 11, lines 12-16).

Claim 23 recites in a method of attenuating waves with a submerged breakwater generating structure (1), the improvement comprising bringing the waves into contact with a submerged breakwater generating structure (1) comprising an open box having a vertical wall (10) for producing a breakwater at an offshore side, said vertical wall (10) having at least one opening (11) at a lower end and slits (14) inclined with respect to the direction along which waves propagate disposed at the top portion of the box, said slits (14) defining openings provided in a spaced-apart relationship between said vertical wall (10) and a second vertical wall of said open box. (Support for the recitations of claim 23 can be found in the clean copy of the substitute specification filed on September 9, 2002 at page 7, lines 17-29 and Figure 2).

Claim 24 recites in a method of attenuating waves with a submerged breakwater generating structure (1), the improvement comprising bringing the waves into contact with a submerged breakwater generating structure (1) comprising an open box having a vertical wall (10) for producing a breakwater at an offshore side, said vertical wall (10) having at least one opening (11) at a lower end thereof and slits (14) inclined with respect to the direction along which waves propagate disposed at the top portion of said

box, said slits (14) defining openings provided in a spaced-apart relationship between said vertical wall (10) and a second vertical wall (10) of said open box, said box being formed as two stages and placed on a mound (3). (Support for the recitations of claim 24 can be found in the clean copy of the substitute specification filed on September 9, 2002 at page 9, lines 1-3 and Figure 4).

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the supplemental appeal brief is correct.

(8) Evidence Relied Upon

The following is a listing of the evidence (e.g., patents, publications, Official Notice, and admitted prior art) relied upon in the rejection of claims under appeal:

JP 55-110520.....08-1980.

(9) Grounds of Rejection

The following grounds of rejection are applicable to the appealed claims:

Claims 13, 15, and 21 stand rejected under 35 U.S.C. 102(b) as being anticipated by JP 55-110520, which rejection was set forth in an Office Action made final and mailed on May 18, 2004.

The substance of the rejection of claims 13, 15, and 21 is as follows:

Regarding claim 13, JP 55-110520 discloses structure capable of performing as a submerged breakwater wherein the structure comprises an open box having a vertical wall with at least one opening (3) existing at a lower end of the vertical wall. JP 55-110520 further discloses slits (5a) that are inclined with respect to the direction along which waves propagate, disposed along the top portion of the box, wherein the slits (5a) define openings provided in spaced apart relationship.

Regarding claim 15, JP 55-110520 discloses the structure defined above wherein at least one hole (3) is formed at the bottom of the box.

Regarding claim 21, JP 55-110520 discloses the structure defined above wherein a height of a coastal side wall (4) of the box is higher than a height of the vertical wall described above. Furthermore, the slits (5a) are arranged to become higher toward the coast.

Claims 16, 18, 23, and 24 stand rejected under 35 U.S.C. 103(a) as being unpatentable over JP 55-110520, which rejection was set forth in an Office Action made final and mailed on May 18, 2004.

The substance of the rejection of claims 16, 18, 23, and 24 is as follows:

JP 55-110520 discloses structure capable of performing as a submerged breakwater wherein the structure comprises an open box having a vertical wall with at least one opening (3) existing at a lower end of the vertical wall. JP 55-110520 further discloses slits (5a) that are inclined with respect to the direction along which waves propagate, disposed along the top portion of the box, wherein the slits define openings provided in spaced apart relationship. The lowermost and uppermost portions of the structure may be considered as two stages.

Regarding claim 18, the openings (3) and slits (5a) provide a through path from the box to a coastal side of the structure.

Although JP 55-110520 fails to explicitly disclose that the structure is placed on a mound, it would have been obvious to one of ordinary skill in the art to place the structure at any location desired on the lower bed of a large body of water. The structure disclosed by JP 55-110520 could be placed anywhere on a seabed. It is common knowledge that seabeds are not necessarily flat and planar surfaces; they are known to possess contours. Some of those contours constitute mounds. Therefore, it would have been obvious to one of ordinary skill in the art to intentionally or unintentionally place the structure of JP '55-11020 on a mound created on a seabed.

Regarding claims 23 and 24, JP 55-110520 discloses the basic method steps required to develop the method steps claimed by the applicant of the present invention.

(10) Response to Argument

102 rejection, claims 13 and 21 as being anticipated by JP 55-110520

With respect to the examiner's rejection of claims 13 and 21 in the Office Action made final and mailed on May 18, 2004, Appellants first argue that the invention claimed in claims 13 and 21 is distinguishable over JP 55-110520 in that the breakwater unit disclosed therein is not submerged. The examiner respectfully submits that the "submerged" language in the claims is a statement of intended use and as such all the examiner need do is show that the structure of the reference is capable of such intended use. Since the structure of JP 55-110520 is clearly intended to be used as a breakwater generating structure and is capable of such use when at least the front side is submerged (see translation of JP 55-110520, page 1, first full paragraph, lines 8-10), the examiner submits that claims 13 and 21 are not patentably distinguishable from JP 55-110520 on this basis. At any rate, JP 55-110520 discloses use within a body of water and thus, meets Appellants "submerged" language. Further, it should be noted that even when the breakwater generating structure of JP 55-110520 is used as intended (i.e., front side submerged and rear side on shore side exposed above water as stated in the translation of JP 55-110520 on page 1, first full paragraph, lines 8-10), since high and low tides cannot be controlled and since flooding, hurricanes, and tidal waves can naturally occur, a non-submerged breakwater generating structure clearly can and will become submerged depending upon weather conditions, high and low tides, and other such factors.

Appellants also argue that JP 55-110520 does not disclose a vertical wall for producing a breakwater at an offshore side which has at least one opening at a lower end thereof because the opening (3) of JP 55-110520 is provided in the front wall of the breakwater unit (2) and is disposed practically throughout the whole height of the front wall. The examiner disagrees. Clearly, the front wall of JP 55-110520 is a vertical wall. The recitation of "for producing a breakwater at an offshore side" is intended use language and the front wall of JP 55-110520 is clearly capable of being used to produce a breakwater at an offshore side. Further, the front wall of JP 55-110520 has at least one opening (3) at a lower end thereof. That the opening (3) is disposed practically throughout the whole or entire height of the front wall is of no consequence because front wall and the opening are both capable of being used to produce a breakwater at an offshore side and allowing some of the water to pass through the breakwater generating structure and therefore, the examiner maintains her rejection of claims 13 and 21 as being anticipated under 35 U.S.C. § 102(b) by JP 55-11020. At any rate, JP 55-110520 shows a vertical side with openings (3) at an offshore side. Thus, JP 55-110520 discloses "an open box having a vertical wall for producing a breakwater at an offshore side."

Appellants argue that claims 13 and 21 require that the slits be inclined with respect to the direction along which waves propagate and that JP 55-110520 has slits which are sloped with respect to a vertical direction and not a horizontal direction along which waves propagate because in JP 55-110520, an incoming wave contacts the sloped surface (6) to cause the wave to travel up the surface and be dissipated by

passing through the slits (7) and coming to the resistance provided by the projections on the sloped surface. The examiner respectfully disagrees that the slits of JP 55-110520 are sloped with respect to a vertical direction and not a horizontal direction along which waves propagate. First, the examiner notes that waves in a naturally occurring body of water such as the ocean propagate in a multitude of different directions. Appellants have not defined "the direction along which waves propagate" in their specification as being the horizontal direction. However, even assuming that the direction of wave propagation is the horizontal direction, any line that is inclined with respect to the horizontal is also inclined with respect to the vertical and as such, there is no basis to say that JP 55-110520 has slits that are sloped with respect to the vertical direction and not the horizontal direction. Further, it is not necessarily true that an incoming wave contacts the sloped surface (6) of JP 55-110520 in order to cause the wave to travel up the surface (6) and be dissipated by passing through the slit (7) and coming to resistance provided by the projections on the sloped surface (6). It is also possible that an incoming wave propagating in the horizontal direction will strike the inclined surface (5a) and be deflected downwardly into the breakwater generating structure. Therefore, as broadly claimed, JP 55-110520 discloses slits that are inclined with respect to the direction along which waves propagate (i.e., the horizontal direction) and therefore, the examiner maintains her rejection of claims 13 and 21 as being anticipated under 35 U.S.C. § 102(b) by JP 55-110520.

Appellants argue that the unobvious difference in construction between the presently claimed submerged breakwater generating structure and the breakwater unit

of JP 55-110520 is due to the present invention being designed to operate in a submerged state while the breakwater unit of JP 55-110520 is designed to have a part of the sloped surface disposed above the seawater surface. As stated above, the "submerged" language in the claims is a statement of intended use and as such all the examiner need do is show that the structure of the reference is capable of such intended use and since the structure of JP 55-110520 is clearly intended to be used as a breakwater structure and is capable of such use when submerged, the examiner submits that claims 13 and 21 are not patentably distinguishable from JP 55-110520 on this basis. At any rate, JP 55-110520 discloses use within a body of water and thus is "submerged" so as to read upon the "submerged" language of the claims. The "submerged" language of the claims does not define "completely covered." Otherwise, Appellants' claimed structure may not be fully covered by water depending upon wave motion, tides, weather conditions, etc.

Claim 15

Although in Appellants' supplement appeal brief, claim 15 is listed together with claims 13 and 21 in the argument section on pages 5-6 and thus, considered as grouped together, it is clear that Appellants intend claim 15 to be grouped separately as per pages 6 of their supplemental appeal brief where they have the heading that claim 15 is separately patentable. Therefore, the examiner is considering claim 15 to be grouped separately from claims 13 and 21.

Appellants further argue that claim 15 is separately patentable over JP 55-110520 because claim 15 requires that at least one hole be formed at the bottom of the box and Appellants allege that JP 55-110520 does not show such structure or equivalent structure. The examiner notes that Appellants have chosen to use extremely broad language in describing the position of the at least one hole as being "formed at the bottom of the box" and as broadly claimed, the openings (3) on each of the front and back wall of the breakwater generating structure of JP '520 fully meet the claim language because the openings (3) are near the bottom of the breakwater generating structure and therefore, can be considered to be "formed at the bottom of the box." With claim 15 depending directly from claim 13, the openings (3) at the shore side (side designated by reference numeral 4) constitute "at least one hole . . . formed at the bottom of said box" with the wall opening (3) at the offshore end constituting "a vertical wall . . . at an offshore side" with "said vertical wall having at least one opening at a lower end."

Furthermore, the examiner notes that although the Appellants appear to be arguing that the at least hole is formed along the bottom surface of the breakwater generating structure, claim 15 is not claiming this. Claim 15 only recites the limitation that "at least one hole is formed at the bottom of said box" (i.e., not along the bottom surface).

103 rejection, claims 16, 18, 23, and 24 as being obvious in view of JP 55-110520

The examiner notes that although Appellants have listed claims 16, 18, 23, and 24 as separately patentable under the Argument section of their supplemental appeal brief, **the arguments for patentability of claims 16, 18, 23, and 24 do not differ in any respect from Appellants' arguments as to the patentability of independent claims 13 and 21.**

The examiner also notes that since claims 16, 18, 23, and 24 are different in scope, claim 16 is the representative claim because it is the closest to claim 13 (i.e., claim 16 is as broad as claim 13).

With respect to the examiner's rejection of claims 16, 18, 23, and 24 in the Office Action made final and mailed on May 18, 2004, Appellants first argue that the invention claimed in claims 16, 18, 23 and 24 is not obvious over JP 55-110520 for the same reasons discussed above with respect to the rejection of claims 13, 15, and 21. More particularly, Appellants argue that the breakwater unit disclosed in JP 55-110520 is not submerged. As stated above with respect to the rejections of claims 13, 15, and 21, the examiner respectfully submits that the "submerged" language in the claims is a statement of intended use and as such all the examiner need do is show that the structure of the reference is capable of such intended use. Since the structure of JP 55-110520 is clearly intended to be used as a breakwater generating structure and is capable of such use when at least the front side is submerged (see translation of JP 55-110520, page 1, first full paragraph, lines 8-10), the examiner submits that claims 16, 18, 23, and 24 are not patentably distinguishable from JP 55-110520 on this basis. At

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any rate, JP 55-110520 discloses use within a body of water and thus, meets Appellants "submerged" language. Further, it should be noted that even when the breakwater generating structure of JP 55-110520 is used as intended (i.e., front side submerged and rear side on shore side exposed above water as stated in the translation of JP 55-110520 on page 1, first full paragraph, lines 8-10), since high and low tides cannot be controlled and since flooding, hurricanes, and tidal waves can naturally occur, a non-submerged breakwater generating structure clearly can and will become submerged depending upon weather conditions, high and low tides, and other such factors.

Appellants also argue that JP 55-110520 does not disclose a vertical wall for producing a breakwater at an offshore side which has at least one opening at a lower end thereof, but rather that the openings (3) are provided in the front wall of the breakwater unit (2) of JP 55-110520 and are disposed practically throughout the whole height thereof. The examiner disagrees because the front wall of JP 55-110520 is clearly a vertical wall. The recitation of "for producing a breakwater at an offshore side" is intended use language and the front wall of JP 55-110520 is clearly capable of being used to produce a breakwater at an offshore side. Further, the front wall of JP 55-110520 has at least one opening (3) at a lower end thereof. That the opening (3) is disposed practically throughout the whole height of the front wall is of no consequence because front wall and the opening are both capable of being used to produce a breakwater at an offshore side and allowing some of the water to pass through the breakwater generating structure and therefore, the examiner maintains her rejection of claims 16, 18, 23, and 24 as being obvious under 35 U.S.C. § 103(a) in view of JP 55-

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110520. At any rate, JP 55-110520 shows a vertical side with openings (3) at an offshore side. Thus, JP 55-110520 discloses "an open box having a vertical wall for producing a breakwater at an offshore side."

Appellants also argue that claims 16, 18, 23 and 24 require that the slits be inclined with respect to the direction along which waves propagate, but that in contrast, the slits in JP 55-110520 are sloped with respect to a vertical direction and not a horizontal direction along which waves propagate such that an incoming wave contacts the sloped surface (6) which causes the wave to travel up the surface and be dissipated by passing through the slits (7) and coming to the resistance provided by the projections on the sloped surface. The examiner respectfully disagrees that the slits of JP 55-110520 are sloped with respect to a vertical direction and not a horizontal direction along which waves propagate. First, the examiner notes that waves in a naturally occurring body of water such as the ocean propagate in a multitude of different directions. Appellants have not defined "the direction along which waves propagate" in their specification as being the horizontal direction. However, even assuming that the direction of wave propagation is the horizontal direction, any line that is inclined with respect to the horizontal is also inclined with respect to the vertical and as such, there is no basis to say that JP 55-110520 has slits that are sloped with respect to the vertical direction and not the horizontal direction. Further, it is not necessarily true that an incoming wave contacts the sloped surface (6) of JP 55-110520 in order to cause the wave to travel up the surface (6) and be dissipated by passing through the slit (7) and coming to resistance provided by the projections on the sloped surface (6). It is also

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possible that an incoming wave propagating in the horizontal direction will strike the inclined surface (5a) and be deflected downwardly into the breakwater generating structure. Therefore, as broadly claimed, JP 55-110520 discloses slits that are inclined with respect to the direction along which waves propagate (i.e., the horizontal direction) and therefore, the examiner maintains her rejection of claims 16, 18, 23, and 24 as being obvious under 35 U.S.C. § 103(a) in view of JP 55-110520.

Appellants argue that the unobvious difference in construction between the claimed submerged breakwater generating structure of the present application and the breakwater unit (2) of JP 55-110520 is due to the present invention being designed to operate in a submerged state while the breakwater unit of JP 55-110520 is designed to have a part of the sloped surface disposed above the seawater surface and as such, claims 16, 18, 23, and 24 are clearly patentably distinguished over JP 55-110520. As stated above, the "submerged" language in the claims is a statement of intended use and as such all the examiner need do is show that the structure of the reference is capable of such intended use and since the structure of JP 55-110520 is clearly intended to be used as a breakwater structure and is capable of such use when submerged, the examiner submits that claims 13, 15, and 21 are not patentably distinguishable from JP 55-110520 on this basis. At any rate, JP 55-110520 discloses use within a body of water and thus is "submerged" so as to read upon the "submerged" language of the claims. The "submerged" language of the claims does not define

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"completely covered." Otherwise, Appellants' claimed structure may not be fully covered by water depending upon wave motion, tides, weather conditions, etc.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



HEATHER SHACKELFORD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600

Gay Ann Spahn, Patent Examiner
May 31, 2005

Conferees: Heather Shackelford, Supervisory Patent Examiner
Michael Safavi, Primary Examiner *MS*
Gay Ann Spahn, Patent Examiner *GAS*

FLYNN, THIEL, BOUTELL & TANIS, P.C.
2026 Rambling Road
Kalamazoo, MI 49008-1699